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(54) **PULSED SYSTEM AND METHOD FOR FIBER OPTIC SENSOR**

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(58) **Field of Search** 385/12, 13

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(57) **ABSTRACT**

A system and method is disclosed for generating, propagating, and detecting light pulses for use with a fiber optic transducer array. The system preferably uses two pulses to provide fixed and relatively short interferometer path differences to thereby reduce coherent light noise. The system preferably uses a surface acoustic wave device for chirping the light pulses to thereby spread noise over a wider bandwidth so as to suppress noise. A coherent light source is preferably amplitude modulated to produce an initial pulse. In one embodiment, that initial pulse is chirped and split into two pulses. One of the two pulses is delayed while the other is frequency shifted. The two pulses are combined onto a single fiber optic path and applied to the fiber optic transducer array. After being acted on by the fiber optic transducer array, the two pulses are photodetected and processed to obtain the information about the physical phenomena to be detected.

15 Claims, 2 Drawing Sheets